

*Airport capacity profile estimates were created using a standard set of performance characteristics and do not take into account non-runway constraints, unless otherwise noted. The capacity estimates developed for this report are not intended to replace the results of any detailed analysis that would precede an environmental, investment, or policy decision.*

***The list of Future Improvements and their expected effects on capacity does not imply FAA commitment to, or approval of, any item on the list.***

## DEFINITION

- The capacity profile shows the hourly throughput that an airport is able to sustain during periods of high demand, represented as the range between the model-estimated capacity and the ATC facility reported rate (called rate). Each weather condition has a unique capacity rate range.
- IAD tends to operate in an arrival or departure priority mode, as opposed to a balanced operation. An arrival or departure priority operation is only feasible when the airport's flight schedule is unbalanced for sustained periods of time.
- The following charts compare actual hourly traffic with the estimated capacity curves for IAD.

## RECENT CAPACITY IMPROVEMENTS AT IAD

- In 2008 IAD commissioned a new runway, 1L/19R, which is primarily used for arrivals.
- Implementation of Traffic Management Advisor (TMA) helps to improve the flow of arrivals to the runways.

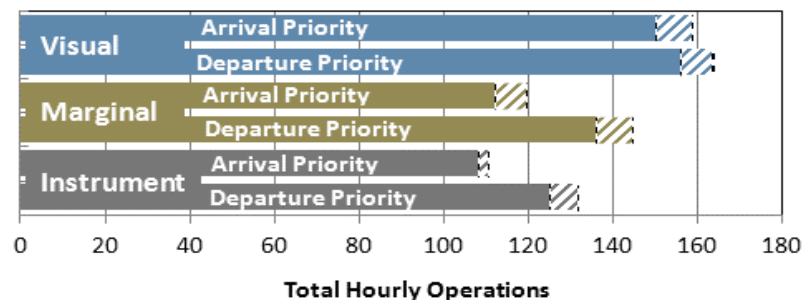
## FUTURE IMPROVEMENTS AT IAD

- Improved Runway Delivery Accuracy:* The combined effects of several new capabilities, including ADS-B Out, CDTI, and TBM in the terminal area, will improve the ability of controllers by 2020 to deliver aircraft to the runway with the desired separation from the preceding aircraft. This will reduce the average spacing between arrivals and boost arrival capacity.
- Improved Parallel Runway Operations:* Current spacing of the new Runway 1L/19R allows for Triple Simultaneous Instrument Approaches, however this procedure has not been implemented yet at IAD and requires the installation of upgraded surveillance equipment. It is unlikely that such approaches would be implemented until required by traffic levels.
- Additional information on these improvements may be found in this report under "Future Operation Assumptions."

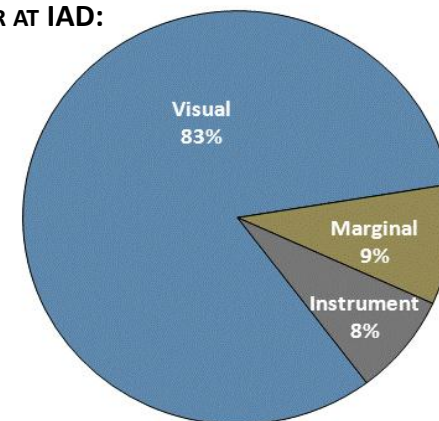
## DATA SOURCES

- Actual hourly IAD operations, weather and configuration data were obtained from the FAA ASPM database, and represent operational hours from 7am to 11pm local time for all of Fiscal Years 2009 and 2010. Actual configuration usage is determined by multiple operational factors, including weather conditions.
- Facility reported rates were provided by ATC personnel at IAD.
- Model-estimated rates are derived from operational information provided by ATC.

## CURRENT OPERATIONS CAPACITY RATE RANGE



## ANNUAL WEATHER AT IAD:



### VISUAL CONDITIONS:

- Ceiling and visibility allow for visual approaches: at least 3000 feet ceiling and 7 miles visibility

### MARGINAL CONDITIONS:

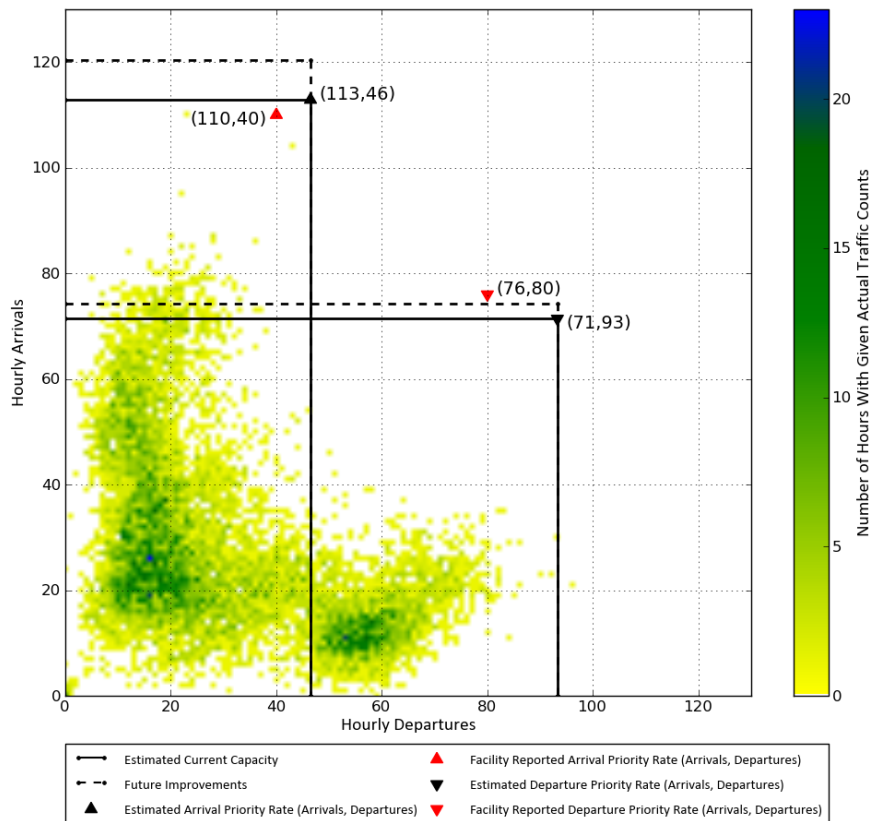
- Ceiling and visibility below visual approach minima but better than Instrument conditions

### INSTRUMENT CONDITIONS:

- Ceiling and visibility below 1000 feet ceiling or 3 miles visibility

IAD Scenario		Arrival Runways	Departure Runways	Procedures	Hourly Rate	
					ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	ARRIVAL PRIORITY	19L, 19C, 19R	30	Visual Approaches, Visual Separation	150	159
	DEPARTURE PRIORITY	19C, 19R	19L, 30		156	164
FUTURE IMPROVEMENTS Improved Runway Delivery Accuracy	ARRIVAL PRIORITY	19L, 19C, 19R	30		N/A	166
	DEPARTURE PRIORITY	19C, 19R	19L, 30		N/A	167

## VISUAL WEATHER CONDITIONS



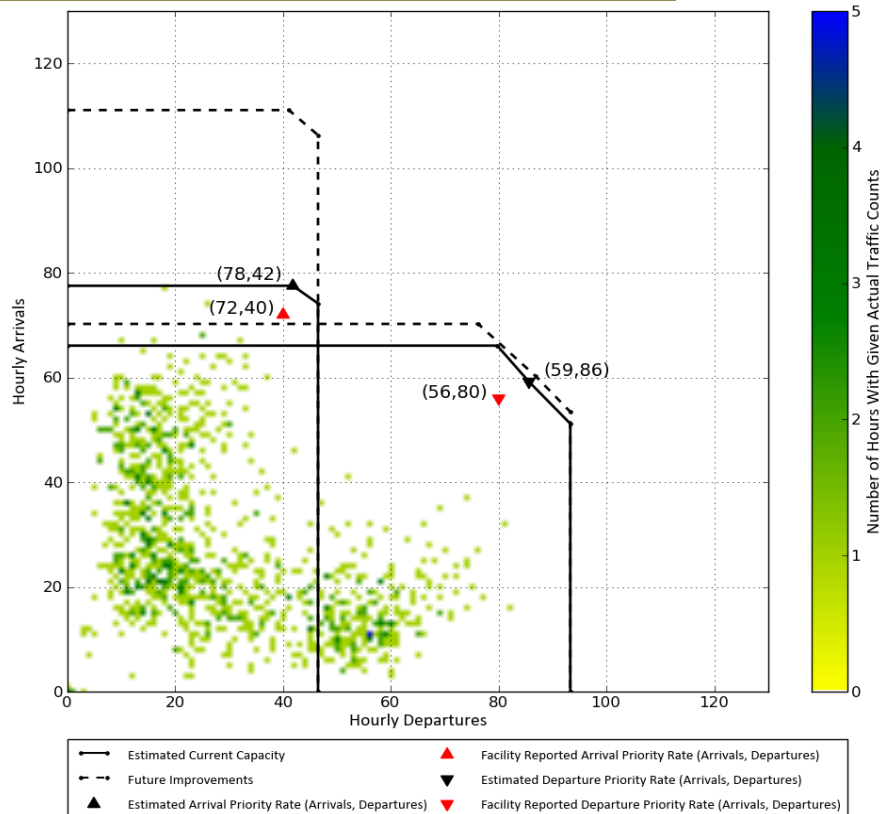
- The capacity rate range in Visual conditions is currently 150-159 operations per hour in arrival priority and 156-164 in departure priority.
- IAD has two primary directional flows, North and South. The airport also tends to operate in an arrival priority or departure priority mode.
- The airport operates in this arrival priority mode approximately 12% of the time in Visual weather conditions (totaling 10% annually).
- The airport operates in this departure priority mode approximately 15% of the time in Visual weather conditions (totaling 12% annually).
- Runway 1C/19C was closed from July through November 2009, so the percentages cited above include hours during which this configuration was not available.

# MARGINAL

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IAD Scenario		Arrival Runways	Departure Runways	Procedures	Hourly Rate	
					ATC Facility Reported	Model-Estimated
<b>CURRENT OPERATIONS</b>	ARRIVAL PRIORITY	19L, 19C, 19R	30	Dependent (between Runways 19R and 19C) and Independent (between Runways 19C and 19L) Instrument Approaches, Visual Separation	112	120
	DEPARTURE PRIORITY	19C, 19R	19L, 30	Simultaneous Instrument Approaches, Visual Separation	136	145
<b>FUTURE IMPROVEMENTS</b> Improved Parallel Runway Operations Improved Runway Delivery Accuracy	ARRIVAL PRIORITY	19L, 19C, 19R	30	Triple Simultaneous Instrument Approaches, Visual Separation	N/A	152
	DEPARTURE PRIORITY	19C, 19R	19L, 30	Simultaneous Instrument Approaches, Visual Separation	N/A	147

## MARGINAL WEATHER CONDITIONS



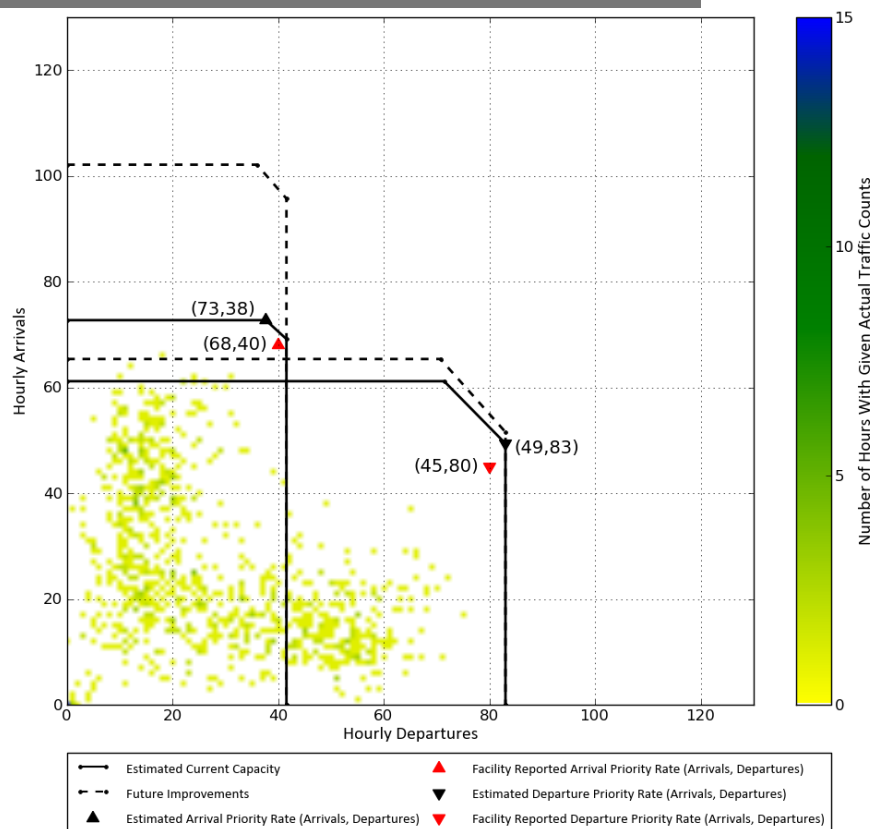
- The capacity rate range in Marginal conditions is currently 112-120 operations per hour in arrival priority and 136-145 in departure priority.
- IAD has two primary directional flows, North and South. The airport also tends to operate in an arrival priority or departure priority mode.
- The airport operates in this arrival priority mode approximately 4% of the time in Marginal weather conditions (totaling less than 1% annually).
- The airport operates in this departure priority mode approximately 19% of the time in Marginal weather conditions (totaling 2% annually).
- [Note: Runway 1C/19C was closed from July through November 2009, so the percentages cited above include hours during which this configuration was not available.]
- Reduced separation (2.5 NM) between arrivals is authorized for approaches to Runway 19L and 19C at IAD.
- Peak arrival capacity is estimated to increase as future improvements are implemented for the arrival priority mode.

# INSTRUMENT

# WASHINGTON DULLES INTERNATIONAL

IAD Scenario		Arrival Runways	Departure Runways	Procedures	Hourly Rate	
					ATC Facility Reported	Model-Estimate
<b>CURRENT OPERATIONS</b>	ARRIVAL PRIORITY	19L, 19C, 19R	30	Dependent (between Runways 19R and 19C) and Independent (between Runways 19C and 19L) Instrument Approaches, Radar Separation	108	111
	DEPARTURE PRIORITY	19C, 19R	19L, 30	Simultaneous Instrument Approaches, Radar Separation	125	132
<b>FUTURE IMPROVEMENTS</b> Improved Parallel Runway Operations Improved Runway Delivery Accuracy	ARRIVAL PRIORITY	19L, 19C, 19R	30	Triple Simultaneous Instrument Approaches, Radar Separation	N/A	138
	DEPARTURE PRIORITY	19C, 19R	19L, 30	Simultaneous Instrument Approaches, Radar Separation	N/A	135

## INSTRUMENT WEATHER CONDITIONS



- The capacity rate range in Instrument conditions is currently 108-111 operations per hour in arrival priority and 125-132 in departure priority.
- IAD has two primary directional flows , North and South. The airport also tends to operate in an arrival priority or departure priority mode.
- The airport operates in this arrival priority mode approximately 3% of the time in Instrument weather conditions (totaling less than 1% annually).
- The airport operates in this departure priority mode approximately 11% of the time in Instrument weather conditions, (totaling less than 1% annually).
- [Note: Runway 1C/19C was closed from July through November 2009, so the percentages cited above include hours during which this configuration was not available.]
- Reduced separation (2.5 NM) between arrivals is authorized for approaches to Runway 19L and 19C at IAD.
- Peak arrival capacity is estimated to increase as future improvements are implemented for the arrival priority mode.